

AMENDMENTS TO THE CLAIMS

Listing of Claims

1. Canceled:

2. (currently amended): [The document image capture system of claim 1 further comprising:]

A document image capture and processing system comprising:
a document scanner for scanning a document and providing a
digital image of information on the document to an image buffer;
a document transport for transporting paper documents past the
document scanner;

a computer having a trend array for storing maximum values of
scanner output as a document is scanned;
trend analyzer logic in the computer for evaluating the maximum
values in the trend array to determine a rate of scanner
performance deterioration;

adjust logic in the computer for adjusting the maximum values of
scanner picture element output in an initial row of the trend
array after an interval to generate an adjusted maximum value for
each scanner picture element;

the adjust logic in the computer, adjusting a maximum picture
element value by a larger amount when the maximum value of
scanner picture element output indicates a return to acceptable
performance by the scanning portion of the image system and
adjusting a maximum picture element value by a smaller amount
when the maximum value of scanner picture element output
indicates a deterioration of acceptable performance by the
scanning portion of the image system.

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3. (originally presented): The document image capture system of claim 2 further comprising:

trend array shift logic in the computer for shifting the adjusted maximum value of each scanner picture element output from the initial row of the trend array after an interval to an adjacent row in the trend array to generate a column of adjusted maximum values for each scanner picture element;

the trend analyzer logic responding to a slope of a rate of change of adjusted maximum values in a column of adjusted maximum values for a scanner picture element to generate a projection of when maintenance will be required.

4. (canceled):

5. (canceled).

6. (previously amended): The document image capture system of claim 3 further comprising:

image analyzer logic responsive to image data in the image buffer for analyzing each image to detect defects in image capture portions of the system.

7. (originally presented): The document image capture system of claim 6 wherein the image analyzer logic further comprises:

a document centering detector for monitoring the document centering function of the document transport;

a document skew detector for monitoring the document aligning function of the document transport; and

a maximum video gradient detector for monitoring scanner picture element sensors and data path by detecting a maximum contrast of the digital image of information on the document in the image buffer.

8. (canceled)

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9. (currently amended): [Method of claim 8 further comprising steps of:]

Method for indicating operating integrity of a document image capture and processing system comprising steps of:
transporting paper documents past a document scanner;
scanning a document and providing a digital image of information on the document to an image buffer;
storing maximum values of scanner output in a computer trend array as a document is scanned;
evaluating the maximum values in the trend array to determine a rate of scanner performance deterioration;
adjusting the maximum values of scanner picture element output in an initial row of the trend array after an interval to generate an adjusted maximum value for each scanner picture element; and
adjusting a maximum picture element value by a larger amount when the maximum value of scanner picture element output indicates a return to acceptable performance by the scanning portion of the image system and adjusting a maximum picture element value by a smaller amount when the maximum value of scanner picture element output indicates a deterioration of acceptable performance by the scanning portion of the image system.

10. (originally presented): Method of claim 9 further comprising steps of:

shifting the adjusted maximum value of each scanner picture element output from the initial row of the trend array after an interval to an adjacent row in the trend array to generate a column of adjusted maximum values for each scanner picture element; and

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responding to a slope of a rate of change of adjusted maximum values in a column of adjusted maximum values for a scanner picture element to generate a projection of when maintenance will be required.

11. (currently amended): [Method of claim 8 further comprising steps of:]

Method for indicating operating integrity of a document image capture and processing system comprising steps of:
transporting paper documents past a document scanner;
scanning a document and providing a digital image of information on the document to an image buffer;
storing maximum values of scanner output in a computer trend array as a document is scanned;
storing minimum values of scanner output in the trend array as a document is scanned; and
evaluating the maximum values in the trend array and the minimum values in the minimum trend array to determine a rate of scanner performance deterioration.

12. (canceled).

13. (previously amended): Method of claim 10 further comprising step of:

responding to image data in the image buffer by analyzing each image to detect defects in image capture portions of the system.

14. (originally presented): Method of claim 13 wherein the image analyzing step further comprises:

monitoring the document centering function of the document transport;
monitoring the document aligning function of the document transport; and

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monitoring scanner picture element sensors and data path by detecting a maximum contrast of the digital image of information on the document in the image buffer.

15. (previously amended): A program on a computer usable medium for indicating operating integrity of a document image capture and processing system, the program on the computer usable medium comprising:

programmed logic means for comparing a value captured at each picture element during each scan line of an image with the value captured by the picture element during a preceding scan line to collect a maximum value captured by the picture element during scanning of the image;

programmed trend array logic means including a trend array for storing maximum values of scanner output as documents are scanned;

programmed trend analyzer logic means for evaluating the maximum values in the trend array to determine a rate of scanner performance deterioration.

16. (originally presented): The program of claim 15 further comprising:

programmed adjust logic means for adjusting the maximum values of scanner picture element output in an initial row of the trend array after an interval to generate an adjusted maximum value for each scanner picture element;

the programmed adjust logic means, adjusting a maximum picture element value by a larger amount when the maximum value of scanner picture element output indicates a return to acceptable performance by the scanning portion of the image system and adjusting a maximum picture element value by a smaller amount when the maximum value of scanner picture element output

indicates a deterioration of acceptable performance by the scanning portion of the image system.

17. (originally presented): The program of claim 16 further comprising:

programmed trend array shift logic means for shifting the adjusted maximum value of each scanner picture element output from the initial row of the trend array after an interval to an adjacent row in the trend array to generate a column of adjusted maximum values for each scanner picture element;

the programmed trend analyzer logic means responding to a slope of a rate of change of adjusted maximum values in a column of adjusted maximum values for a scanner picture element to generate a projection of when maintenance will be required.

18. (originally presented): The program of claim 15 further comprising:

the programmed trend array logic means including a minimum trend array for storing minimum values of scanner output as documents are scanned; and

the programmed trend analyzer logic means, evaluating the maximum values in the trend array and the minimum values in the minimum trend array to determine a rate of scanner performance deterioration.

19. (previously amended): The program of claim 15 further comprising:
programmed image processor logic means for processing information received from the image buffer;
programmed interleave control logic means for interleaving a test digital image of known information between digital images of information on documents in the image buffer;
programmed comparator logic means for comparing processed test image result information with expected result information to detect defects in image processing portions of the system;
the indications of defects detected by the comparator and the rate of scanner performance deterioration are indications of the health of image processing portions and scanner devices of the system.

20. (previously amended): The program of claim 17 further comprising:
programmed image analyzer logic means responsive to image data in the image buffer for analyzing each image to detect defects in image capture portions of the system.

21. (previously amended): The program of claim 20 wherein the programmed image analyzer logic means further comprises:
programmed document centering detector means for monitoring the document centering function of the document transport;
programmed document skew detector means for monitoring the document aligning function of the document transport; and
programmed maximum video gradient detector means for monitoring scanner picture element sensors and data path by detecting a maximum contrast of the digital image of information on the document in the image buffer.